

REMARKS

This is in response to the Office Action dated August 24, 2004. Claims 1-6 and 8-15 are pending.

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Medwick in view of Veerasamy. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 as amended requires "providing a coating on a glass substrate, the coating including at least one layer comprising Ag, and an uppermost layer of the coating comprises silicon nitride; ion beam depositing, using gas comprising a hydrocarbon, a protective layer comprising diamond-like carbon (DLC) on the glass substrate over the coating so as to directly contact the coating so that the protective layer comprising DLC directly contacts the uppermost layer of the coating that comprises silicon nitride; heat treating the glass substrate with the coating and protective layer thereon so that the protective layer comprising diamond-like carbon (DLC) at least partially burns off during the heat treating." It has surprisingly been found that the use of ion beam deposition for the DLC so that the DLC directly contacts silicon nitride, with gas comprising a hydrocarbon such as C₂H₂ in the ion source, is highly advantageous in that it results in much less damage, if any, to the underlying coating. In particular, the use of an ion beam in combination with the use of a layer comprising silicon nitride as an uppermost layer of the coating permits less damage to be done to the coating. This permits the DLC to be applied directly to the coating with no barrier or other layer provided therebetween,

thereby enabling processing steps to be saved compared to the cited art. The cited art fails to disclose or suggest this aspect of claim 1.

Medwick relates primarily to the use of a polymer protective coating that is removed by washing (e.g., paragraph [0031]). However, Medwick also mentions a carbon protective coating that may be removed by combustion (e.g., paragraph [0055]). However, Medwick's carbon coating is applied over a coating whose upper layer is an oxide (*not* comprising silicon nitride as called for in claim 1) (paragraph [0056]). Since the uppermost layer of Medwick's coating is an oxide, Medwick uses a "blocking layer 18" to prevent the carbon from pulling oxygen out of the coating (paragraph [0056]).

Thus, it can be seen that Medwick teaches directly away from applying DLC directly onto a coating whose uppermost layer comprises silicon nitride as called for in claim 1. As explained above, this significantly reduces damage which may be caused during formation of the DLC inclusive layer. In fact, Medwick teaches the opposite of this since Medwick teaches that (a) the uppermost layer of the coating 14 is an oxide, and (b) a barrier layer is provided between the coating and the carbon. This is, of course, undesirable in that extra processing and layer(s) are needed, thereby significantly increasing the cost of manufacture and decreasing yields.

In contrast, by using ion beam deposition with a gas comprising hydrocarbon in combination with a coating whose uppermost layer comprises silicon nitride, the instant inventors have found that much less damage is done to the underlying coating when the DLC is deposited so as to contact the silicon nitride. Thus, the DLC can be deposited in a

more efficient manner directly onto the coating with no need for a blocking layer that is needed in Medwick.

The Office Action cites Veerasamy for the use of DLC. However, citation to Veerasamy cannot overcome the fundamental flaws of Medwick discussed above. There is nothing in Veerasamy which would have caused one of ordinary skill in the art to modify Medwick in a manner which would overcome the aforesaid deficiencies of Medwick. Additionally, Veerasamy teaches directly away from the invention of claim 1 because the entire goal of Veerasamy is to *prevent* the DLC from burning off by using a tungsten disulfide layer located over the DLC. Veerasamy expressly states that the DLC should not be permitted to burn off during heat treatment. Thus, Veerasamy clearly teaches directly away from the invention of claim 1 for this additional reason, and also teaches directly away from the object of Medwick which is to remove carbon.

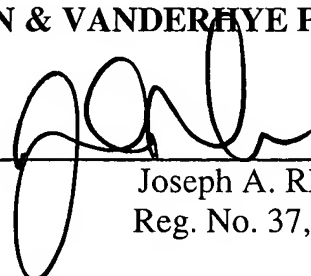
It is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

THOMSEN et al.
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Respectfully submitted,

NIXON & VANDERHIE P.C.

By: _____

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